

REMARKS

The Examiner noted that claims 1-20 are pending in the application. The Examiner rejected claims 1-3, 8, 11-16, and 19-20, and the Examiner objected to claims 4-7, 9, 10, 17 and 18. The Examiner's rejections and objections are traversed below, and reconsideration of all claims is respectfully requested.

Claim 1 is amended to incorporate the subject matter of claim 2, and claim 3 is amended to depend from claim 1. Claim 8 is amended to incorporate the subject matter of claim 9, and claims 10, 17 and 18 are amended to depend from claim 8. In addition, claims 2 and 9 are canceled without prejudice or disclaimer.

Rejection of Claims Under 35 U.S.C. § 103(a)

In items 1-2 on page 2 of the Office Action, the Examiner rejected claims 1-3, 8, 11-16 and 19-20 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,983,520 issued to Kim et al. (hereinafter referred to as "Kim"), in view of U.S. Patent 6,742,284 issued to Dinh. The rejection is respectfully traversed.

In point 4 of page 3 of the Office Action, the Examiner indicated that the air duct of claim 9 includes allowable subject matter. Because the air duct of claim 2 is similar to the air duct of claim 9, with differing scope and breadth, the subject matter of claim 2 is incorporated into claim 1, and claim 3 is amended to depend from claim 1, withdrawal of the rejection of claims 1 and 3 is respectfully requested.

Accordingly, based on the indication from the Office Action of allowable subject matter, and with independent claims 1 and 8 now including allowable subject matter from dependent claims 2 and 9, respectively, it is respectfully submitted that claims 1, 3-8 and 10-18 are in allowable condition.

Therefore, though the remaining remarks equally apply to independent claims 1 and 8, the following is now primarily directed toward rejected claims 19 and 20.

It is respectfully submitted that Kim taken alone, or in combination with Dinh, does not disclose, teach or suggest at least "A drying mode method of a drum washing machine, the method comprising: . . . recovering heat from the high temperature humid air through at least one heat pipe; combining the recovered heat with low temperature dry air flowing through the rotary tub; reheating the combined air producing high temperature dry air; and re-circulating the high temperature dry air through the rotary tub," as recited in claim 19.

The Office Action asserts that Kim's discharge duct 22 and condensation duct 23 (Figure 5) form a heat recovery system.

However, column 4, line 58 - column 5, line 17 of Kim discloses a condensation water supply valve 24 (Figure 5) installed above the condensation duct 23 to condense the high temperature and humid air in order to prevent the high temperature and humid air from being introduced again into the interior of the washing tub. Instead, the condensed dry air having a lower temperature is supplied to the interior of the washing tub 4, and the laundry in the washing tub 4 is dried by the microwaves emitted from the magnetron 12, which is located outside of condensation duct 23 as shown in Figure 5. Accordingly, Kim discloses a dry air recovery system instead of a heat recovery system.

In addition, it is noted that the Office Action asserts that Kim discloses a drum washing machine having an air duct 18, a blower 20, and a heat recovery system 22 and 23 (item 2, lines 3-4 of the Office Action).

However, Kim discloses a magnetron 12 in a support bracket 11 fixed to an end extending from a driving shaft 5 to supply microwaves to tub 4. The magnetron 12, support bracket 11 and driving shaft 5 are located outside of dryer duct 18 as shown in Figure 5. Accordingly, Kim also does not disclose, teach or suggest a blower fan, a heater, and a condensing nozzle installed in the air duct.

Moreover, the Office Action concedes that "Kim does not show a heat pipe recovery" (item 2, line 6 of the Office Action).

The Office Action asserts, "it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the washing machine of Kim et al. with a heat pipe as taught by Dinh in order to recover waste heat and save energy" (item 2, lines 9-11 of the Office Action).

However, it is respectfully submitted that there would not have been motivation to combine Kim with Dinh to provide the features of the present invention. Kim discloses a magnetron 12 installed by a support bracket 11 fixed to an end extended from a driving shaft 5 to produce microwaves. The microwaves are guided by an antenna 16 connected to the magnetron 12, so that the microwaves are supplied to the interior of a washing tub 4 through a hollow portion of drive shaft 5 (column 4, line 45 - column 5, line 17 of Kim).

Dinh discloses a tobacco curing and drying system for removing the moisture from freshly harvested tobacco leaves located in a tobacco barn. Dinh does not disclose, teach or

suggest a drum washing machine.

The Office Action indicates that the proffered combination would have been obvious "to recover waste heat and save energy." It is respectfully submitted that this proffered motivation fails to support a *prima facie* obviousness case.

To set forth a *prima facie* §103 rejection, there must be some evidenced reason for modifying a reference. Specifically, there must be evidence outside the present application, which motivates, leads, or suggests to one of ordinary skill to modify a reference (MPEP § 2141). It is respectfully submitted that there would not have been motivation to combine Kim's microwave dryer for a washing machine with Dinh's tobacco curing and drying system for drying tobacco leaves in a barn.

MPEP § 2142 states that "when the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the Examiner to explain why the combination of the teachings is proper."

Here, the Examiner simply stated, with no evidence to support the assertion, that one having ordinary skill in the art at the time of the invention would be motivated to combine a microwave dryer for a washing machine for washing laundry (Kim) with a pipe in a tobacco curing and drying system (Dinh). It is respectfully submitted that this does not speak to the motivation for combining the two references. The Examiner is required to present actual evidence and make particular findings related to the motivation to combine the teaching of the references.

Accordingly, for at least these reasons, it is respectfully submitted that claim 1 patentably distinguishes over the cited references. In re Kotzab, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000); In re Dembiczak, 50 USPQ2d 1614, 1617 (Fed Cir. 1999). Broad conclusory statements regarding the teaching of multiple references, standing alone, are not "evidence." Dembiczak, 50 USPQ2d at 1617. "The factual inquiry whether to combine the references must be thorough and searching." In re Lee 61 USPQ2d 1430, 1433 (Fed Cir. 2002) (citing McGinley v. Franklin Sports, Inc., 60 USPQ2d 1001, 1008 (Fed Cir. 2001)). The factual inquiry must be based on objective evidence of record, and cannot be based on subjective belief and unknown authority. Id. at 1433-34. The Examiner must explain the reasons that one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious. In re Rouffet, 47 USPQ2d 1453, 1459 (Fed. Cir. 1998).

Therefore, for at least the reasons presented above, it is respectfully submitted that there

would not have been motivation to combine Kim with Dinh.

As conceded in the Office Action, Kim does not show any heat pipe recovery (item 3, line 6 of the Office Action). Further, Dinh does not disclose a rotary tub. Moreover, as discussed above, one having ordinary skill in the art at the time the invention was made would not have had motivation to combine Kim's washing machine with Dinh's tobacco curing and drying system.

Therefore, for at least the above reasons it is respectfully submitted that claim 19 is patentably distinguishable over the cited references.

Also similarly, Kim and Dinh taken separately or in combination do not disclose, teach or suggest at least "a clothes-drying unit including a plurality of pipes, wherein the pipes recover, . . . , heat from high temperature humid air after the high temperature humid air comes out of a water tub, and combine the recovered heat with low temperature dry air flowing from an area around a condensing nozzle," as recited in claim 20.

Again, the Office Action concedes that Kim does not disclose any type of heat pipe recovery system (item 2, line 6 of the Office Action). Moreover, one having ordinary skill in the art would not have been motivated to combine a pipe from a tobacco curing and drying system for curing and drying tobacco in a barn (Dinh) with a microwave dryer for a washing machine (Kim). Therefore, it is respectfully submitted that claim 20 also patentably distinguishes over the cited references.

In Item 3 on pages 2-3 of the Office Action, the Examiner rejected claims 1-3, 8, 11-16 and 19-20 under 35 U.S.C. § 103 as being unpatentable over Kim in view of U.S. Patent 6,497,107 issued to Maisotsenko et al. (hereinafter referred to as "Maisotsenko"). This rejection is respectfully traversed.

Similar to above, it is respectfully submitted that claims 1, 3-8 and 10-18 are in condition for allowance, with the remaining remarks primarily being focused on remaining rejected claims 19 and 20.

Kim and Maisotsenko, taken separately or in combination, do not disclose, teach or suggest at least "A drying-mode method of a drum washing machine, the method comprising: . . . recovering heat from the high temperature humid air through at least one heat pipe; combining the recovered heat with low temperature dry air flowing from the rotary tub; reheating the combined air producing high temperature dry air; and re-circulating the high temperature dry air through the rotary tub, . . . " as recited in claim 19.

The Office Action substitutes Maisotsenko for Dinh and asserts that Maisotsenko's heat pipe recovery system 69 illustrates the claimed heat pipe.

However, Maisotsenko's heat pipes 69 are for a cooling system for a vehicle as shown in Figures 10-15.

There would not have been motivation to combine the two references in an attempt to obtain the features of the present invention.

Kim discloses a microwave dryer for a washing machine, which uses a magnetron 12 to provide microwaves to a washing tub 4 to heat laundry. Maisotsenko provides heat pipes 69 for a cooling system for a vehicle. Maisotsenko does not disclose, teach or suggest a drum washing machine.

However, as discussed above, to set forth a *prima facie* § 103 rejection, there must be some evidenced reason for modifying a reference. Specifically, there must be evidence, outside of the present application, which motivates, leads, or suggests to one of ordinary skill to modify a reference (MPEP § 2141). It is respectfully submitted that there would not have been motivation to combine a pipe from a cooling system for a vehicle as taught by Maisotsenko with the microwave dryer as taught by Kim.

Therefore, for at least the above reasons, it is respectfully submitted that claim 19 patentably distinguishes over the cited references.

In addition, Kim and Maisotsenko, taken separately or in combination, do not disclose, teach or suggest at least "A drum washing machine, comprising: the clothes-drying unit . . . wherein the pipes recover . . . heat from high temperature humid air after the high temperature humid air comes out of a water tub, and combine the recovered heat with low temperature dry air flowing from an area around a condensing nozzle," as recited in claim 20.

There would not have been motivation to combine the two references in an attempt to obtain the features of the present invention. Therefore, for at least the above reasons, it is respectfully submitted that claim 20 also patentably distinguishes over the cited references.

Summary

Claims 1, 3-8 and 10-20 are pending and under consideration. It is respectfully submitted that none of the references taken alone or in combination disclose the present claimed invention. There being no further outstanding objections or rejections, it is respectfully submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned and tend to these matters.

If there are any additional fees associated with filing of this amendment, please charge the same to Deposit Account No. 19-3935.

Respectfully submitted,

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